Claims

1. A polyimide film obtainable by reacting an aromatic diamine having a benzoxazole structure with an aromatic tetracarbonic acid anhydride, which film has a planar orientation coefficient of 0.79-0.89 as measured by an X-ray diffraction method and a dielectric constant of 2.7-3.1 at 100 GHz as measured by a cavity resonance perturbation method.

2. The polyimide film of claim 1, having a dielectric loss tangent at 100 GHz of 0.0001-0.03 as measured by the cavity resonance perturbation method.

3. The polyimide film of claim 1, having dielectric constants of 2.7-3.1 at 1 GHz and 2.6-3.0 at 100 GHz, as measured by the cavity resonance perturbation method.

4. The polyimide film of claim 1, which has a density of 1.47 g/cm^3 - 1.55 g/cm^3.

5. A polyimide film obtainable by reacting an aromatic diamine having a benzoxazole structure with an aromatic tetracarbonic acid anhydride, wherein the amount of water vaporized at a high temperature during heating at 500°C for 10 sec of the film immediately after helium purge at 170°C for 7 min and preliminary drying is not more than 5000 ppm.

6. The polyimide film of claim 1, wherein the ratio ($\varepsilon_{65}/\varepsilon_D$) of the dielectric constant ε_{65} at 100 GHz of the film humidity-conditioned under a constant temperature and humidity conditions of 20°C, 65% RH for 94 hr, as measured by the cavity resonance perturbation method, to the dielectric constant εD at 100 GHz of the film vacuum dried under the conditions of 120°C, for 24 hr, as measured by the cavity resonance perturbation method, is within the range of 1.00-1.10.

7. A polyimide film obtainable by reacting an aromatic diamine having a benzoxazole structure with an aromatic tetracarbonic acid anhydride, wherein the

absolute value of the difference between a surface planar orientation degree of one surface (surface A) and a surface planar orientation degree of the other surface (surface B) of the film is 0-2.

8. The polyimide film of claim 7, wherein the surface planar orientation degree of the film surface having a higher surface planar orientation degree is not more than 15.

9. The polyimide film of claim 7, which has a curling degree of 0%-5%.

10. (Canceled)

11. A base substrate for printed wiring assemblies, which comprises the polyimide film of claim 1.

12. A method of producing a polyimide film, which comprises reacting an aromatic diamine with an aromatic tetracarbonic acid anhydride to give a polyamide acid, casting a solution thereof on a support and drying the solution to give a self-supporting polyimide precursor film and polyimidating said precursor film, wherein the polyimide precursor film satisfies the relationships shown by the following formulas between an imidation rate Aim of one surface side (surface A side) and an imidation rate Bim of the other surface side (surface B side) of the polyimide precursor film and said polyimide precursor film is subjected to imidation:

formula 1: $|Aim-Bim| \leq 5$

formula 2: $0 \leq Aim \leq 15$

formula 3: $0 \leq Bim \leq 15$.

13. The polyimide film of claim 2, having dielectric constants of 2.7-3.1 at 1 GHz and 2.6-3.0 at 100 GHz, as measured by the cavity resonance perturbation method.

14. The polyimide film of claim 2, which has a density of 1.47 g/cm^3 - 1.55 g/cm^3.

15. The polyimide film of claim 7, wherein the ratio

($\varepsilon_{65}/\varepsilon_D$) of the dielectric constant ε_{65} at 100 GHz of the film humidity-conditioned under a constant temperature and humidity conditions of 20°C, 65% RH for 94 hr, as measured by the cavity resonance perturbation method, to the dielectric constant εD at 100 GHz of the film vacuum dried under the conditions of 120°C, for 24 hr, as measured by the cavity resonance perturbation method, is within the range of 1.00-1.10.

16. The polyimide film of claim 8, which has a curling degree of 0%-5%.

17. A base substrate for printed wiring assemblies, which comprises the polyimide film of claim 4.

18. A base substrate for printed wiring assemblies, which comprises the polyimide film of claim 5.

19. A base substrate for printed wiring assemblies, which comprises the polyimide film of claim 7.